OPEN SYSTEMS DEMONSTRATION

The purpose of the Open Systems Demonstration is to showcase how the principles of MOSA can be used to successfully integrate software and hardware from different vendors into a cohesive system.

Since the Future Airborne Capability Environment (FACE) Consortium has last been able to get together a lot has happened with the Army's commitment to FACE™ and other Modular Open Systems Approach (MOSA) efforts. PEO Aviation stood up the MOSA Transformation Office and is developing a MOSA Conformance Capability to ensure Army platforms satisfy PEO Aviations MOSA objectives: Improve Affordability, Increase Readiness, Enhance Capability, Reduce Schedule Pressure, and Reduce Supply Chain Risk.

FACE TECHNICAL STANDARD

Use of the FACE Approach and the FACE Reference Architecture make this demonstration possible. Use of the common reference architecture provided by the FACE Technical Standard by multiple program offices has provided readily available components. New features of the FACE Tech Standard 3.0 provide extremely effective ways to blend transports without recompiling software. The FACE Approach includes guidance on how to bring the FACE Technical Standard to Legacy systems, allowing the inclusion of software packages that are not aligned to FACE into future systems through FACE wrappers.

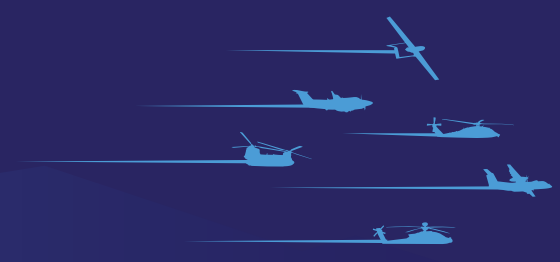
U.S.ARMY

DEVCOM AVIATION & MISSILE CENTER

PROGRAM EXECUTIVE OFFICE AVIATION

MOSA Transforming the Future

PEO AVN OPEN SYSTEMS DEMO



PRODUCTS & PARTICIPATION

The following are a list of the participants demonstrating their hardware and software setup according to their specific programs (e.g. PM-Utility Helicopters, PM-Cargo Helicopters, PM-UAS) and other USG on-platform enablers (e.g. PM-Aviation Mission System Architecture, PM-Advanced Turbine Engines, Pm Air Survivability equipment, PM Air Warrior), will use the Enterprise Architecture Framework to define architectural requirements for their product lines for the 2021 TIM.

Participants (20)
AdaCore
Ansys
Avalex
BAE
Bell
Boeing
Collins
DDC-I
General Atomics
L3/Harris
Lockheed Martin
Lynx
Mercury Mission Systems
NAI
Northrop Grumman
OAR
Parry Labs
RTI
Skayl
TES
Wind River

DoD Organizations (9)
DEVCOM/ASIF
DEVCOM AvMc/TDD-A
DEVCOM/CAPT
PEO Aviation
PM AMSA
PM UAS
PM UH
PM CARGO
PM FW
PMA 209 (Navy)

Operating Systems (5)	Company
CentOS 7	Red Hat (Open Source)
DDC-I DEOS with RTEMS	DDC-I + OAR
LynxOS 178	Lynx
RedHat 8	Red Hat
VxWorks	Wind River

TSS Products (8)	Company
FACE 3.1 COE TSS	TES
CinC	DEVCOM AvMC/TDD-A, Skayl
Collins	Collins
Connext	RTI
EUAS TSS (Kafka)	PM EUAS, Parry Labs
L3Harris TSS	L3Harris
NG TSS	PM UH, Northrup Grumman
RRADE	PEO Aviation, OAR

Hardware Products (7)	Company
4178 Display	Avalex
4105 Display	Avalex
AMCS Prototype	Mercury Mission Systems
PSM 8600B	Collins
TRMC	Northrop Grumman
Stellar Relay	Parry Labs
SIU	NAI

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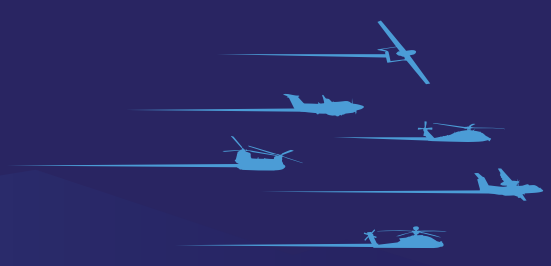
PRODUCTS & PARTICIPATION CONTINUED

Software Products (29)	Company
ANSYS CDS	Ansys
Bell ITEP Engine PSSS	Bell, TES
PFD	Boeing
ARR	Collins
MFMS	Collins
Alerts UA	DEVCOM/ASIF
CommonUA	DEVCOM/ASIF
MAP UA	DEVCOM/ASIF
Menu System	DEVCOM/ASIF
RIF CDS	DEVCOM/ASIF, Preasgis
RIF PSSS	DEVCOM/ASIF
Downlink	General Atomics
Flight C2	General Atomics
Handover Manager	General Atomics
MEM	General Atomics
Passive Sensor C2	General Atomics
Uplink	General Atomics
Air Traffic Manager (ADS-B)	Lockheed Martin
eTAWS	LM/Army/Navy
IFF Reduced Size Transponder ADS-B Device Manager	Lockheed Martin
60v FliteScene	PM UH, NGC, L3H
TRMC BFT	PM UH, NGC
TRMC Flight Display	PM UH, NGC
Correlator	BAE
Arke Broker	PEO Aviation
Arke Collector	PEO Aviation
IDM Software	PM AMSA
ARCM	TES



WHITE PAPERS

During each FACE TIM, the DEVCOM team has presented papers based on the research and development of our programs developed to the FACE Technical Standard. There are three papers presented at this TIM directly related to the Open Systems Demo integration.

MULTIPLE TRANSPORTS

Integration of multiple systems within a single aircraft system may involve the coordination of multiple transports. Within this demonstration multiple transports were integrated together following techniques from this paper, as well as using external transforms.

CONFIGURABLE UA

The implementation of configurable UAs can be seen in the Alerts and Engine functions on the flight display software. These applications were configured using transforms for the TSS messages and DF files.

MIXED CRITICALITY SUPPORT IN ARINC-661

Within the demonstration there are two ARINC-661 servers from two different suppliers. In the case of the CDS implemented in the cockpit, the CDS is implemented such that User Applications are prevented from rendering over the flight critical displays. This CDS can support lower criticality User Applications without impacting the higher criticality functions of the flight deck.
The second CDS used in this demonstration is implemented as having full control over a display that has only lower criticality functions.

FOR ADDITIONAL INFORMATION ABOUT PEO AVIATION OPEN SYSTEMS EFFORTS, PLEASE CONTACT MOSA TRANSFORMATION OFFICE
- MATT SIPE, DIRECTOR OF MOSA TRANSFORMATION

ADDITIONAL INFORMATION AVAILABLE HERE

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